



40,000 Hz COPLANAR APPARENT RESISTIVITY OF THE ALASKA HIGHWAY CORRIDOR, EAST-CENTRAL ALASKA

PARTS OF BIG DELTA and MT. HAYES QUADRANGLES

by
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RESISTIVITY

The RESOLVE EM system measured inphase and quadrature components at six frequencies. One vertical coaxial coil-pair operated at 3300 Hz while five horizontal coplanar coil-pairs operated at 400, 1800, 8200, 40,000 and 140,000 Hz. EM data were sampled at 0.1 second intervals. The EM system responds to bedrock conductors, conductive overburden, and cultural sources. Apparent resistivity is generated from the inphase and quadrature component of the coplanar 40,000 Hz using the pseudo-layer half space model. The data were interpolated onto a regular 80 m grid using a modified Akima (1970) technique.

Alkma, R. (1970). A new method of interpolating and smoothing curve fitting based on local procedures. Journal of the Association of Computing Machinery, v. 17, no. 6, p. 689-692.

RESISTIVITY ALTITUDE LIMITS

In areas where the EM bird height exceeded 100 m, and the inphase and quadrature signals were below 3 ppm, the resistivity was not calculated and the grid is blank. This avoids meaningless resistivity calculations due to small signals in areas where the helicopter flew higher to avoid cultural objects or for safety reasons.

DESCRIPTIVE NOTES

The geophysical data were acquired with a RESOLVE Electromagnetic (EM) system and a Scintrex cesium magnetometer. The EM and magnetic sensors were flown at a height of 100 feet. In addition the survey recorded data from a radar altimeter, GPS navigation system, 50/60 Hz monitors and video camera. Flights were performed using AS350B-2 and AS350B-3 Squirrel helicopters at a mean terrain clearance of 200 feet along NW-SE (350°) survey flight lines with a spacing of a quarter of a mile. Tie lines were flown perpendicular to the flight lines at intervals of approximately 3 miles.

An Ashtech GG24 NAVSTAR / GLONASS Global Positioning System was used for navigation. The helicopter position was derived every 0.5 seconds using post-flight differential positioning to a relative accuracy of better than 5 m. Flight path positions were projected onto the Clarke 1866 (UTM zone 6) spheroid, 1927 North American datum using a central meridian (CM) of 147°, a north constant of 0 and an east constant of 500,000. Positional accuracy of the presented data is better than 10 m, with respect to the UTM grid.

22.4°
TRUE NORTH
APPROXIMATE MEAN
DECLINATION, 2000

SCALE 1:63,360
1 0 1 2 3 4 MILES
1 0 1 2 3 4 5 KILOMETERS
CONTOUR INTERVAL, 50 FEET
DATUM: NAD 83, 1215

LOCATION INDEX

